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| APPLICATION NO.                   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------|-------------|----------------------|---------------------|------------------|
| 10/658,178                        | 09/09/2003  | Harry W. Sarkas      | NTC02-006-CON-US    | 3345             |
| 43320                             | 7590        | 09/18/2009           | EXAMINER            |                  |
| EVAN LAW GROUP LLC                |             |                      | MAYEKAR, KISHOR     |                  |
| 600 WEST JACKSON BLVD., SUITE 625 |             |                      |                     |                  |
| CHICAGO, IL 60661                 |             |                      | ART UNIT            | PAPER NUMBER     |
|                                   |             |                      | 1795                |                  |
|                                   |             |                      | MAIL DATE           | DELIVERY MODE    |
|                                   |             |                      | 09/18/2009          | PAPER            |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/658,178             | SARKAS ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Kishor Mayekar         | 1795                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 10 June 2009.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 2, 3, 5, 6 and 9-22 is/are pending in the application.  
 4a) Of the above claim(s) 14-22 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 2, 3, 5, 6 and 9-13 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____ .                        |

## DETAILED ACTION

### *Response to Amendment*

1. The amendment of 10 June 2009 has been entered. Claim 2 has been amended and claims 4 and 7 have been cancelled. Claims 9-22 have been added. Claims 2, 3, 5, 6 and 9-22 are pending in this application with claims 2 and 14 being independent claims.

### *Election/Restrictions*

2. Newly submitted claims 14-22 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 14-22 are drawn to a process with the step of generating plasma using a transferred electric arc while the examined claims in the last Office action are drawn to a process with the step of generating a plasma using a free-burning electric arc. The steps are mutually exclusive.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, new claims 14-22 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

3. Applicant's arguments with respect to claims 2, 3, 5, 6 and 9-13 have been considered but are moot in view of the new ground(s) of rejection.

*Claim Rejections - 35 USC § 103*

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 2, 3, 6 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable US 3,644,762 to Sheer et al. (hereinafter Sheer I) in view of US 4,181,704 to Sheer et al. (hereinafter Sheer II), both references in the last Office action . Sheer I's invention is directed to a method for producing chemical and physical changes in substances by exposure of reactive materials to direct current electric arcs where the materials are exposed to a high energy region of a conduction column of a free-burning electric arc (c. 1, l. 10-16). Sheer I discloses that the process comprises the steps of generating a plasma using the free-burning electric arc; introducing reactive materials which may be gases or condensed phase materials entrained in gases by injection into an "injection window" of the arc to vaporize the materials; and subsequently quenching the vaporized materials to provide submicron size particles (Example and c. 4, l. 31-45). Sheer I discloses in the teachings there an example of using a metal oxide in a reactive gas. The difference between Sheer I and claim 1 is the detailing of an oxidizing gas as the reactive gas. Sheer

II teaches in a process for the removal of sulfurous gases from high temperature products of chemical processes similar steps as Sheer I prior to combining the quenched vaporized materials of metal oxides with the sulfurous gases, where the reactive gases are such as air (an oxidizing gas) or hydrogen (c. 3, l. 19 though c. 4, l. 4 and Example). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Sheer I's as shown by Sheer II because the selection of reactive gases such as air to be entrained with the condensed phase materials would have been within the skill of ordinary skill in the art. The same selection is applied to claim 12 to the recited material.

As to the subject of matter of claim 13, it is inherently in the combined references process.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheer I as modified by Sheer II as applied to claims 2, , 3, 6 and 9-13 and further in view of GB 2,359,096 A issued to Deegan et al. The difference between the references as applied above and the instant claim is the provision that the introducing step into the current carrying region of the anodic column of the free-burning electric arc. Deegan, another reference cited in the last Office action, teaches in a plasma reactor for the production of fine powder that the polarities of the electrode may be reversed (p. 9, l. 6-10). Therefore, it would have been obvious to one having ordinary skill in the art at the time

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the invention was made to have modified the references' method such that the plasma is generated from a free-burning electric arc with the polarity reversed, as per the teachings of Deegan. One skilled in the art would have been motivated to make such a modification because the selection of any of known equivalent electric arcs for the generating of plasma would have been within the level of ordinary skill in the art.

*Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kishor Mayekar/  
Primary Examiner, Art Unit 1795